(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(54) Title: A METHOD AND A SYSTEM FOR MEASURING AND RATING USER ACTIVITIES ON WEB-PAGES IN DIGITAL NETWORKS
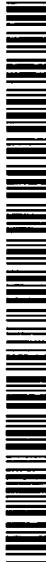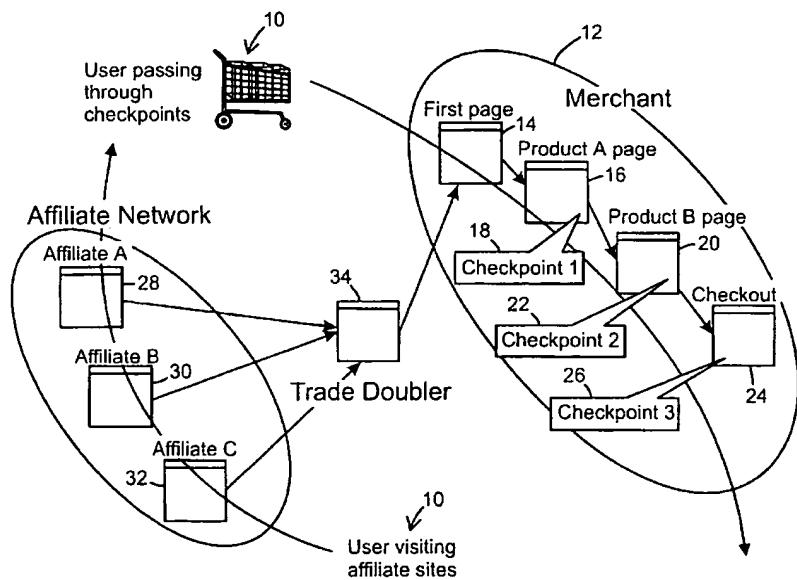
(57) Abstract: The invention concerns a method and a system in order to be able to follow, measure, record and evaluate the activity of a user on web pages in digital networks. A web page and the pages linked to it are provided with priority control codes, "checkpoints", wherein the measurement identifies the code for the page with the highest priority control code and grades the activity according to a scale that determines the importance of the activity. The measurement forms the basis information concerning the amount/quality of the activities that are carried out and in this way constitutes a means for mapping the behaviour of users on web pages.

WO 02/01448 A1

A method and a system for measuring and rating user activities on web pages in digital networks

Technical field

The present invention concerns a method and a system for following, measuring, recording

5   and evaluating the activities of a user on web pages in digital networks.

Background art

The Internet today is visited by a large number of users with different backgrounds. These users visit different types of web pages, also known as sites, due to different interests

10   and different levels of expertise in using the Internet. The sites may be more or less easy to access.

Commerce in goods and services over the Internet is becoming more and more popular and new e-commerce sites are continually being opened on the network. It is therefore of considerable importance, with respect to the increasing competition, for these e-

15   commerce sites to ensure that a potential customer rapidly finds/is connected to precisely their web page for a possible transaction, that is, for purchase of goods or services or for registration.

It is a tendency that users of frequently visited sites, for example the sites known as "portals", most often have a more limited competence in using the Internet, and are less

20   willing to purchase goods or services than users who for the most part visit sites with a particular niche, or vertical sites.

Commercial e-commerce sites exploit banners to a major degree in order to connect customers to their sites via digital links. This is achieved by obtaining access to, that is, purchasing, banner space on larger portals. It is only the larger portals that provide the banner

25   salesperson with any profit, which is why the banner campaigns with the highest quality are found here.

The problem associated with such a manner of connecting customers is that the quality of the users from such portals or larger sites is low. It has also been shown that banners function poorly in causing a user to move onwards through the network. It is also

30   difficult to measure the effect of banners, in which payment occurs for a level of exposure.

An attempt to solve these problems is the creation of a banner network that is provided on vertical, more specialised, sites. Since banners often cannot cause the user to visit the next site on the network, however, the problem remains; it is also difficult in these

automatic banner networks to understand who is looking at the banner, that is, the current target group.

A better solution appears to be "performance banners", a concept in which only advertising space is paid for that leads to a click, that is, transition to the next site on the

5   network. One problem that arises in this case is that "performance", that is, activity, is not always the property for which payment is made, since there does not exist any effective determination of what the user does after he/she has entered the site. Thus, attempts have been made to obtain payment for transactions that are completed, that is, when a user has purchased goods or a service, or has registered for something on a site. Unfortunately, there

10   are many users that visit an e-commerce site without purchasing and/or registering for anything. Furthermore, e-commerce sites are interested in economic compensation for traffic brokers that depends not only on how far into their web pages potential consumers reach but also for any transactions that occur there.

The present invention concerns a method and a system in order to be able to follow,

15   measure, record and evaluate the activities of a user on web pages in digital networks according to the characteristics described in the attached independent claims.

Furthermore, the dependent claims specify preferred embodiments of the invention.

Summary of the disclosed invention

20   It is one aim of the present invention to specify a method and a system in order to be able to follow the activity of a user on web pages in digital networks, in which every activity that is carried out is also measured, recorded and evaluated based on a scale, it is weighted, in order to form the basis information concerning the amount and quality of the activities that are carried out. The information can also be used for evaluation of the profitability of the site

25   and the need for changing it.

The present invention specifies a method for measuring the activity of a user on web pages in digital networks. A web page and the pages that are linked to it are provided with priority control codes, whereby the measurement identifies the code for the page with the highest priority control code and grades the activity according to a scale that determines the

30   importance of the activity. The measurement constitutes a means for mapping the behaviour of users on web pages.

The priority control code activates a program, for example, a script, at the location of the measurement operator that identifies a user-specific code.

The user-specific code, which is stored in a cookie at the location of the user, is matched to the priority control code in order to determine or to verify that it is being identified for the first time within a certain time period.

In one embodiment of the method, the user-specific code can be matched with the priority control code in order to determine or to verify that a grading of the activity is to be carried out.

A control key, containing, for example, the personal registration number of a user, is used to ensure the integrity of the parameters that are used in order to verify that the priority control code is being identified for the first time during a predetermined time period.

Each priority control code is given a specific value.

The priority control codes may be HTML codes or similar.

Furthermore, the present invention specifies a system for measuring the activity of a user on web pages in digital networks. The system comprises a web page and the pages that are linked to it in a network, which pages are provided with priority control codes; measuring means that identify the code for the page with the highest priority control code; grading means for the activity according to a scale that determines the importance of the activity in the measurement. The measurement constitutes a means for mapping the behaviour of users on web pages.

A priority control code means activates a program, for example, a script, at the location of the measurement operator that identifies a user-specific code.

The user-specific code is matched with the priority control code in order to determine or to verify that it is being identified for the first time within a predetermined time period.

In one embodiment of the system, the user-specific code can be matched with the priority control code in order to determine or to verify that a grading of the activity is to be carried out.

A control means is used in order to verify that the priority control code is being identified for the first time within a predetermined time period.

Each priority control code is given a specific value.

The priority control code is constituted by HTML codes or similar.

Brief description of the drawings

Henceforth reference is had to the attached figures for a better understanding of the present invention and its examples and embodiments, wherein:

Fig. 1 illustrates schematically the pathway of a user to the web pages of an e-commerce site, with "checkpoints", through the web pages of a traffic broker and under supervision of a measurement operator, according to one embodiment of a system according to the present invention.

5   Fig. 2 illustrates how web pages with "checkpoints" signal to a measurement operator that registers the passage of a user.

Fig. 3 illustrates the pathway to a transaction, termed "checkout", through the web pages of an e-commerce site in a digital network.

10   **Detailed description of preferred embodiments**

In the subsequent text, a detailed description of a method and preferred embodiments of a system for measurement of the activity of a user on web pages in digital networks according to the present invention is presented, whereby reference is made to the attached drawings.

15   In order to provide the basis information for traffic brokers concerning the activities of users on web pages and in order to make it possible to map the behaviour of users on web pages, the web pages are provided with priority control codes, "checkpoints", that lie hidden in an "image tag" on each web page in the form of, for example, HTML codes or similar. Visits to the web page are measured and subsequently recorded when a "checkpoint" is

20   passed through the activation of a program, for example, a script, at the location of the measurement operator, which program identifies a unique code stored in a cookie at the location of the user. The user-specific code is matched to any previous registration of a visit to the web page that may exist in order to determine that no similar "checkpoint" has been passed within a certain time period.

25   A script is a small program that has been specially written and that is used to connect other programs.

A cookie, in this case, is a storage space in the browser at the location of the user, in which the user-specific code is stored.

In order to ensure the integrity/quality of each checkpoint, a control code, known as a

30   control key, is attached, which code is calculated according to a specific equation comprising, for example, the personal registration number of a user. This equation can be varied in a manner that is well known for one skilled in the arts.

The control key is used, according to one embodiment of the present invention, in order to verify that the priority control code is being identified for the first time within a predetermined time period.

The activities of users on web pages can in this way be graded with the aid of "checkpoints" based on a scale, that is, they can be weighted, in a manner that is appropriate for each e-commerce site or other site on the digital network, in order to form the basis information concerning the amount/quality of the activities that are carried out. The grading may, for example, occur by each "checkpoint" being given a specific value that increases in magnitude the further into the e-commerce site that the web page is located, that is, the nearer to a transaction that the user reaches.

The user-specific code can, according to one embodiment of the invention, be matched to the priority control code in order to verify that a grading of the activity of a user on a web page is to be carried out.

The information that can be obtained from measurements of the activities of a user on web pages in digital networks can also be used for evaluation of the profitability of a site and of the need for changing it.

The pathway of a user 10 to an e-commerce site is illustrated schematically in Fig. 1, according to one embodiment of a system according to the present invention. A user 10 passes the web pages 14, 16, 20 and 24 of an e-commerce site 12 in a digital network, where certain web pages 16, 20 and 24 are provided with priority control codes, "checkpoints", 18, 22 and 26. The user 10 has been connected to the e-commerce site 12 through one or several traffic brokers 28, 30 and 32 in the form of larger sites or what are known as portals, and a measurement operator 34 records this. The measurement operator 34 measures activities on the home pages 16, 20 and 24 of the e-commerce site 12 and provides the e-commerce site 12 with measurement results, which can be subsequently used for various purposes as described above.

Fig. 2 provides an overview of how web pages on an e-commerce site 12, provided with priority control codes, known as "checkpoints", communicate with the measurement operator 34 by sending a signal to the measurement operator every time a user 10 passes a web page on the e-commerce site 12 that is provided with a priority control code, a "checkpoint".

Fig. 3 illustrates in a block diagram 36 how web pages 14, 16, 20 and 24 on an e-commerce site 12 in a digital network, such as, for example, the Internet, can be linked to

each other. The first page to which the user 10 is connected is the entry page 14 of the e-commerce site 12, usually without a "checkpoint", after which follow, in this example, two product pages 16, 20 that may be provided with graded "checkpoints" 18, 22. The user 10 finally reaches the final page or that page that has the highest priority on the e-commerce site

5   12, the "checkout" 24, which may be provided with a further graded "checkpoint" 26, and where either purchase of goods or services, or registration may be carried out before exiting from the e-commerce site 12.

The means and devices described above for achieving the aims of the present invention may consist of hardware, software or a combination of both, which is, in itself,

10   known for one skilled in the arts in this technical area.

The present invention has been described in the form of preferred embodiments, but is not for that reason limited to these. It is rather the scope of the attached claims that defines the invention for one skilled in the arts in this technical area.

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Claims

1.   A method for measuring the activity of users on web pages in digital networks c h a r a c t e r i s e d in that a web page and the pages that are linked to it are provided with priority control codes, wherein the measurement identifies the code for the page with the highest priority control code and grades the activity according to a scale that determines the importance of the activity, and whereby the measurement constitutes a means for mapping the behaviour of users on web pages.

2.   The method according to claim 1, c h a r a c t e r i s e d in that a priority control code activates a program that identifies a user-specific code at the location of the measurement operator.

3.   The method according to claim 2, c h a r a c t e r i s e d in that the program is constituted by a script, that identifies the user-specific code.

4.   The method according to claim 2 or 3, c h a r a c t e r i s e d in that the user-specific code is matched to the priority control code in order to determine or to verify that the priority control code is being identified for the first time within a predetermined time period.

5.   The method according to claims 2-4, c h a r a c t e r i s e d in that the user-specific code is matched to the priority control code in order to verify that a grading of the activity is to be carried out.

6.   The method according to claims 1-5 c h a r a c t e r i s e d in that a control key is used in order to verify that the priority control code is being identified for the first time within a predetermined time period.

7.   The method according to claims 1-6 c h a r a c t e r i s e d in that each priority control code is given a specific value.

8.   The method according to claims 1-7 c h a r a c t e r i s e d in that the priority control codes are HTML codes or similar.

9.   A system for measuring the activity of users on web pages in digital networks, c h a r a c t e r i s e d in that it comprises:

a web page and the pages that are linked to it in the network, which are provided with priority control codes;

measurement means that identify the code for the page with the highest priority control code;

grading means for the activity according to a scale, which determines the importance of the activity in the measurement; and

wherein the measurement constitutes a means for mapping the behaviour of users on web pages.

10.   The system according to claim 9, c h a r a c t e r i s e d in that a priority control code means activates a program that identifies a user-specific code at the location of the measurement operator.

11.   The system according to claim 10, c h a r a c t e r i s e d in that the program is constituted by a script that identifies the user-specific code.

12. The system according to claim 10 or 11, c h a r a c t e r i s e d in that the user-specific code is matched to the priority control code in order to determine or to verify that the priority control code is being identified for the first time within a predetermined time period.

13.   The system according to claims 10-12, c h a r a c t e r i s e d in that the user-specific code is matched to the priority control code in order to verify that a grading of the activity is to be carried out.

14.   . The system according to claims 9-13, c h a r a c t e r i s e d in that a control key is used in order to verify that the priority control code is being identified for the first time within a predetermined time period.

15.   The system according to claims 9-14, c h a r a c t e r i s e d in that each priority control code is given a specific value.

16.   The system according to claims 9-15, c h a r a c t e r i s e d in that the priority control codes are HTML codes or similar.


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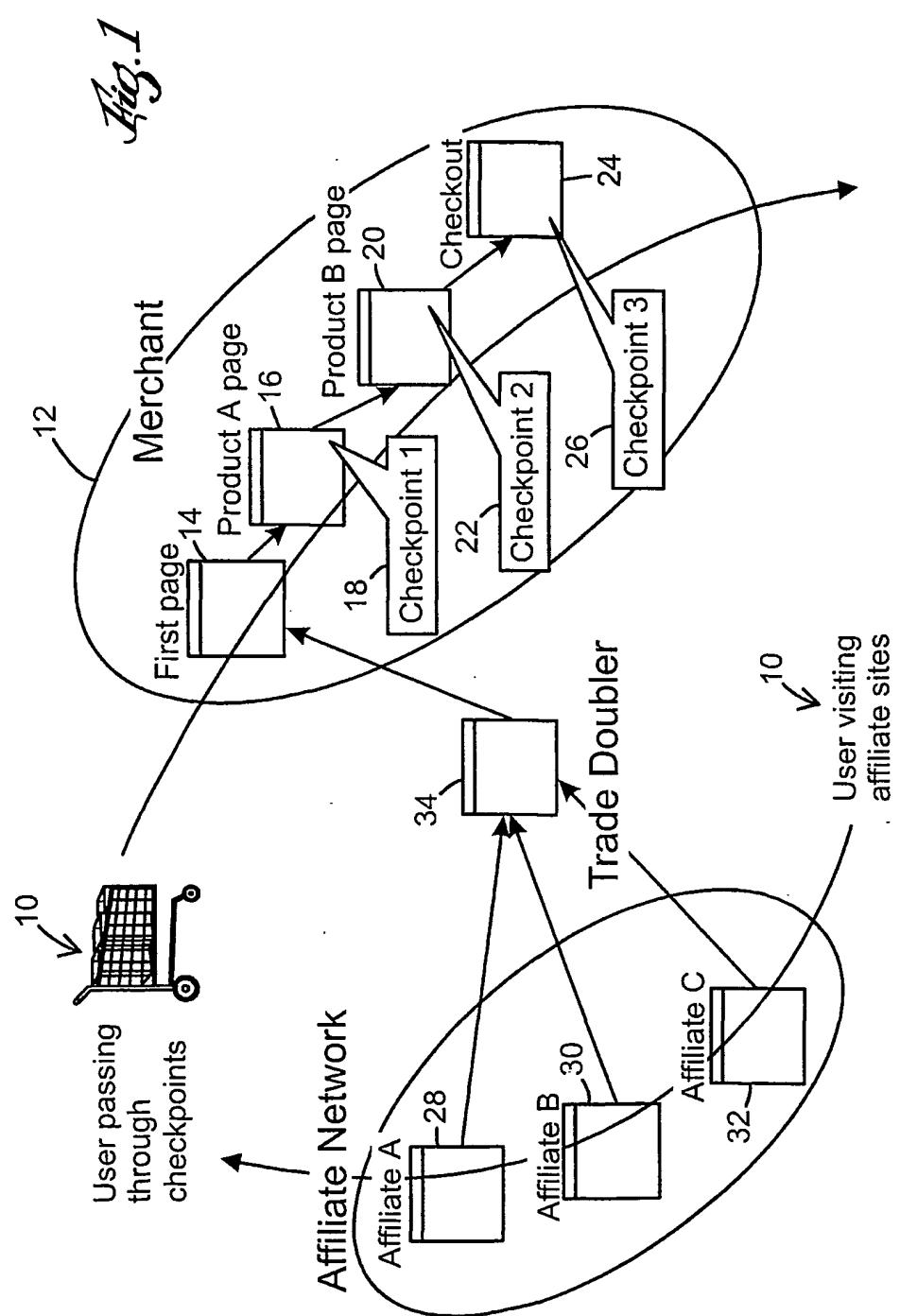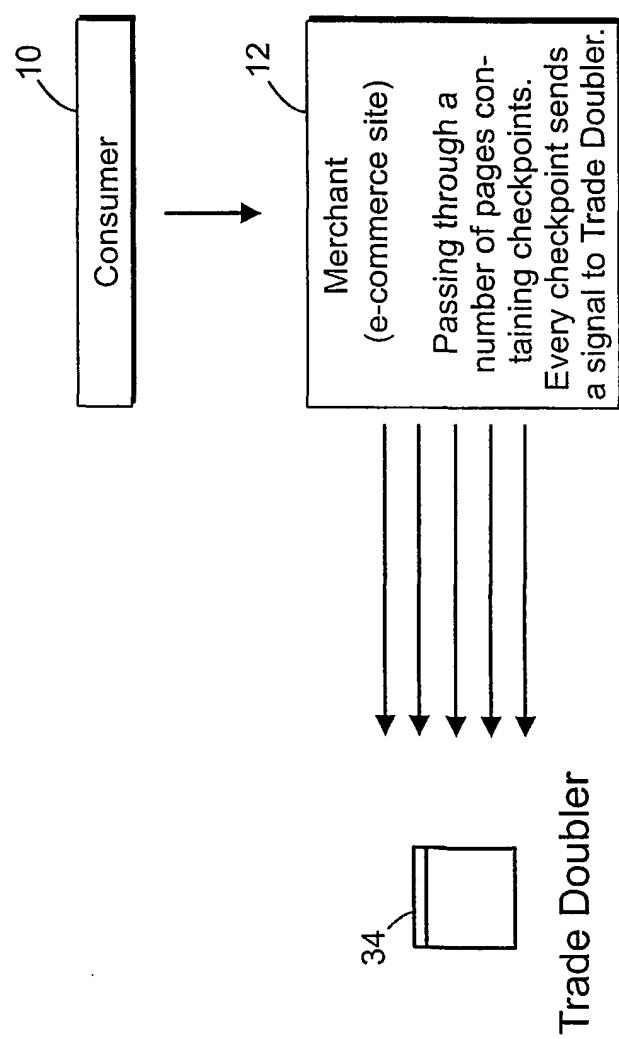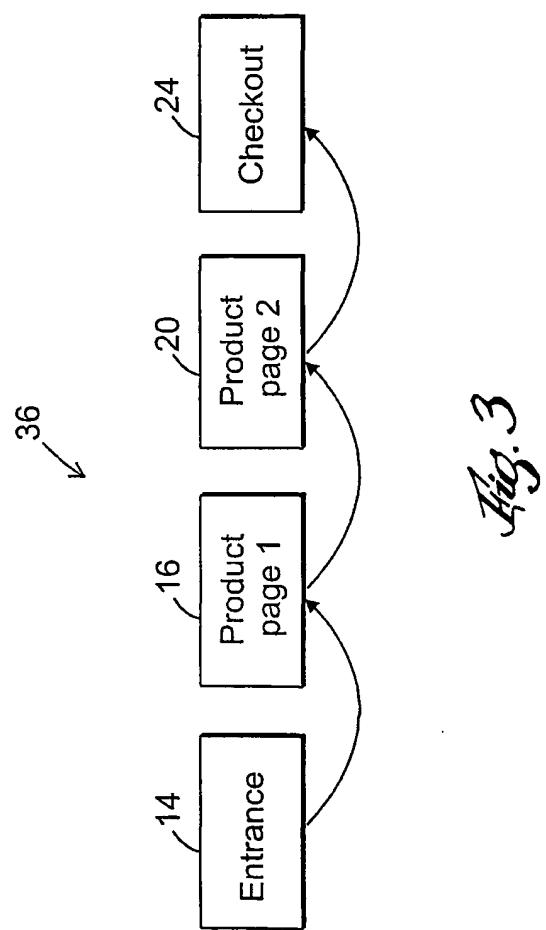
Fig.1

Consumer 10

Merchant 12
(e-commerce site)

Passing through a
number of pages con-
taining checkpoints.
Every checkpoint sends
a signal to Trade Doubler.

Trade Doubler 34

Fig. 2

Fig. 3

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5870559 A (ERAN LESHEMET AL), 9 February 1999 (09.02.99), column 3, line 7 - line 63	1-16
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P,X	US 6189024 A (KRISTIN BAUERSFELD ET AL), 13 February 2001 (13.02.01), column 1, line 65 - column 2, line 33	1,9
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[X] Further documents are listed in the continuation of Box C.   [X] See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 Sept 2001	2 7 -09- 2001

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International application No.

PCT/SE 01/01388

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"Discovering Web Access Patterns and Trends by Applying OLAP and Data Mining Technology on Web logs" Osmar R. Zaïane et al Research and Technology Advances in Digital Libraries Page 19-29 22-24 April 1998 ISBN: 0-8186-8464-X see the whole document	1-16
A	"From Web Usage Statistics to Web Usage Analysis" Gregorios Paliouras et al Systems, Man, and Cybernetics, 199. IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Pages: 159-164 vol. 2 12-15 Oct. 1999 ISBN 0-7803-5731-0 see the whole document	1-16
A	"Tracking Frequent Traversal Areas in a Web Site via Log Analysis" Yuh-Chin Lin et al Parallel and Distributed Systems: Workshops, Seventh International Conference on, 2000 pages: 321-325 4-5 July 2000 ISBN: 0-7695-0571-6 see the whole document	1-16

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				US	5974572 A	26/10/99
				US	6144962 A	07/11/00
				US	6237006 B	22/05/01
US	6189024	A	13/02/01	NONE		